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Overview

The kidney plays a central role in the regulation of blood pressure. It is the sole effector in the regulation of body sodium balance and thus the extracellular fluid volume, which is one of the major determinants of systemic blood pressure. Furthermore, the kidney is physiologically the only organ that generates renin, a key player in the renin-angiotensin system and another major determinant of systemic blood pressure. Extracellular fluid volume and the renin-angiotensin system affect each other in a very delicate manner in the kidney, which include afferent arteriolar perfusion pressure, glomerular filtration fraction, tubuloglomerular feedback through macula densa signaling, angiotensin-regulated proximal sodium reabsorption, and aldosterone-regulated distal sodium reabsorption. Available evidence strongly indicates that the kidney is primarily responsible for the genesis of essential hypertension. Thus, the results of renal cross transplantation experiments in animal models of hypertension as well as those in chronic dialysis patients with end-stage renal failure or severe essential hypertension who received a renal transplantation are instrumental to our better understanding of and therapeutic intervention in the disease process.

Controlling systemic blood pressure as well as possibly intraglomerular hypertension is the key to prevent the relentless progression of chronic renal failure of a diverse etiology. Studies in animals models of chronic renal failure clearly define the renal mechanisms of the beneficial effects of angiotensin blockade and perhaps of calcium channel blockers. Studies in human subjects are less definitive, but strongly suggest the benefit of controlling hypertension as a key in the management of chronic renal disease. As suggested, angiotensin blockade seems better than other means to control blood pressure in preventing the progression of chronic renal failure, and thus angiotensin converting enzyme inhibitors have been widely used in clinical settings.

Recently, another type of angiotensin blockade has become clinically available, that is, angiotensin type 1 receptor antagonists. This class of blockade of angiotensin action is interesting in that it provides an opportunity to examine in more detail the physiological and pathophysiological significance of the angiotensin system in the regulation of blood pressure and renal function. Indeed, angiotensin type 1 receptor blockade leads the potential action of angiotensin II through an unopposed angiotensin type 2 receptor. *In vivo* studies show that such actions of angiotensin II are often antiproliferative and apoptotic, which may be of a greater value compared to angiotensin converting enzyme blockade that effectively inhibits the action through both types of receptors, in the management of chronic progressive renal failure. However, data in support of such a hypothesis are not available at present. Indeed, most data currently available suggest that both classes of angiotensin blocking agents have comparable effects on renal function and progression of chronic renal disease.

The Symposium was organized by Professors Fernando Valderrábano and José Luño with Spanish Society of Nephrology and the Fundación Renal Iñigo Alvarez de Toledo. Merck Sharp and Dohme provided a grant to support this very important scientific meeting. As you see in this special issue, the Symposium has covered a wide range of important topics pertaining to hypertension and the kidney. Intense discussions among participants testify to the interest and the quality of the program. It is notable that "Nephrology Forum," one of the most important educational and teaching activities of the International Society of Nephrology, was one of the highlights of the Symposium. The "Forum" was chaired by Professor N. Madias with the principal discussant, Professor J. Diez, who gave an outstanding discussion on the role of IGF-1 in essential hypertension. The International Society of Nephrology is pleased to participate in this important educational program, and wishes to express its gratitude to the Organizing Committee members and all those who were involved in this endeavor.

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